

United States Department of the Interior



FISH AND WILDLIFE SERVICE Izembek National Wildlife Refuge P. O. Box 127 Cold Bay, Alaska 99571 1-877-837-6332

Izembek National Wildlife Refuge – Agency Report for the Kodiak/Aleutians Federal Subsistence Regional Advisory Council Fall Meeting – September 22, 2006 (Complied 08/07/06)

Caribou

The caribou subsistence season opened on federal lands in 9D on August 1. The harvest limit is now 2 bulls per Federal Registration permit. Season dates are August 1 – September 30 and November 15 – March 31 and registration permits are available from the Izembek Refuge office and locations in the surrounding communities. Refuge staff are working to ensure the best data is received from the permits to get a better handle on the subsistence need of the area. Permittees will be reminded that they are required to turn in their harvest data or it could affect their permit for the following year. This, in turn, will assist wildlife managers in better management of the herd.

There are still concerns over the Southern Alaska Peninsula Caribou Herd (SAPCH), however no new surveys have been completed since January 2006. The refuge staff will work with the Alaska Fish and Game Department this fall to complete a composition count, collaring and testing of caribou in the area. Collaring should provide for more accurate surveys by identifying locations of herds. The testing should provide additional information about the health of the herd. The refuge staff continues to work with the State Game and Fish on the revision of the SAPCH management plan. A winter population count of the herd will continue to be a high priority for the refuge.

Waterfowl: Brant

Last fall there was an increase in the percentage of juvenile brant (33% juveniles to adults) when surveys were conducted in the Izembek area. This shows a successful 2005 breeding season. The winter black brant counts also showed an increase in brant numbers not only remaining at Izembek Refuge area (19,616 brant), but also in Mexico (101,737 brant). Total 2006 winter population was 133,861 brant. As a result, this larger survey number increased the three-year average (115,571 brant) to the point of changing from a very restrictive harvest (a drop of 50% similar to 2005) to a restrictive harvest similar to 2004. The general season for Alaska is September 1 – December 16 rather than the one month allowed last year. Active trapping of foxes in the breeding grounds, and closure of egg gathering and hunting in the five nesting colonies on the Yukon Delta are expected to continue to improve nesting success and numbers of juvenile birds. While this is all good news, there are some concerns by biologists that the current Brant Management Plan moves too quickly to more liberal seasons when a single year of larger population numbers boosts the three year average.

Avian Influenza

Avian Influenza is currently the highest priority for the refuge staff. Sampling of migratory swans on the Alaska Peninsula was completed in July. We are awaiting the test results from these birds. The swans were also collared with blue neck collars. Anyone seeing a swan with a neck collar is requested to provide information on the date, location and the collar number to our refuge office. Ongoing tests on the Yukon Delta and other areas around the State of Alaska have not found the deadly strain of the avian influenza virus. Izembek staff will be testing pintails, Steller's Eiders and brant this fall. As part of the pintail testing several areas on the refuge will need to be close to hunting during the months of September and October. This is due to the need to bait birds to capture them. Steller's Eiders will be tested during the end of August through September when the birds are flightless. Brant testing will occur on recently killed birds from hunters this fall. Other species of waterfowl harvested by hunters will also be tested.

For updates and additional information the following web sites are good information sources or call the refuge office at 877-837-6332. To report dead birds please call **1-866 5BRDFLU** (**1-866-527-3358**). Please note the location (GPS coordinates are best), species of bird, and the date and time that you found them.

Individuals should use care when handling wild birds. Wear basic protection such as rubber gloves, keep tools and work surfaces clean when preparing wild meats. Avoid fluid discharges, fecal material and birds that are obviously sick or found dead. Viruses can be neutralized with heat, drying and disinfectants (like a 10% bleach solution). Freezing will not kill the virus, so continue to take precautions with birds that have been frozen.

Comprehensive Conservation Plan

The Izembek refuge staff is in the process of writing the refuge objectives for the Izembek Comprehensive Conservation Plan. It is hoped that there will be a draft plan available for public comment by January 2007.

Fisheries

Refuge staff are supporting the final year of the Sockeye and Coho Salmon Escapement project at Mortensen's Lagoon. The fish were late in coming in and numbers have increased during the recent month. This project is conducted by the US Fish and Wildlife Service, King Salmon Fishery Resource Office.



United States Department of the Interior



FISH AND WILDLIFE SERVICE Kodiak National Wildlife Refuge 1390 Buskin River Road Kodiak, Alaska 99615-0323 (907) 487-2600

Activity Report Kodiak National Wildlife Refuge March 2006 – August 2006

Fisheries Overview

Kodiak National Wildlife Refuge and Bureau of Indian Affairs personnel collaborated this spring to facilitate and bring in funding of two fishery projects (synopsis below). Unfortunately, they were not supported by either State or Federal subsistence managers due to the lack of concern by villagers. An Ayakulik River steelhead population estimate project was conducted for a second consecutive year, with aid from the Alaska Department of Fish and Game (ADF&G), Sport Division.

Ms. Pattinson has spent three quarters of the year detailed in the Anchorage migratory bird office assisting with the Avian Influenza study, a regional health, safety and subsistence issue. At this time it is unknown when she will return to the Refuge Office.

Sockeye escapement to Karluk exceeded the upper end of the escapement goal range, despite continuous commercial fisheries along the west-side since June 1. In Alitak, the Upper Station early sockeye salmon escapement was not within the escapement goal range. The Ayakulik sockeye salmon run was weak, with escapements being below the number needed to achieve the lower escapement goal, despite no commercial fisheries. Minor sockeye system escapements/run strengths were variable. The Buskin River sockeye salmon escapement count was above the upper escapement goal despite heavy subsistence fishing and increased sport bag limits (this area is closed to commercial fishing through early July because in most years this run is fully utilized by subsistence and sport anglers). Afognak sockeye escapements, which have been at low levels for several years, were within the desired range for this date (see Table for escapement goal change). Restrictions were placed in the Afognak (Litnik) area for subsistence and sport fishery user groups. The Pasagshak Bay sockeye run was strong, and the number of sockeye recently observed in Saltery Lake was greater than in all but the strongest years. There was little or no information on sockeye runs at Uganik, Little River, Pauls/Perenosa Bay, or other minor sockeye systems.

Both the Ayakulik and Karluk Chinook salmon escapements were low throughout the migration period. Non-retention of Chinook salmon greater than 28" had been mandated for the Inner and Outer Karluk Section commercial fisheries, and Chinook salmon sport fishery bag limits were been reduced in the Karluk and Ayakulik systems to one Chinook salmon.

Table 1—Current and recommended Chinook and sockeye salmon escapement goals by spawning system in the Kodiak Management Area (ADF&G). S_{msv}: Maximum Sustained Yield

Escapement Goals

Species System (stock)	Lower	S _{msv}	Upper
Chinook salmon Karluk River	3,600	4,492	7,300
Ayakulik River	4,800	6,638	9,600
Sockeye			
Malina	1,000		10,000
Pauls Bay	10,000		30,000
Afognak Lake	20,000	34,000	50,000
Little River			
Uganik Lake			
Karluk River			
Early Run	100,000	150,000	210,000
Late Run	170,000	270,000	380,000
Ayakulik	200,000		500,000
Akalura			
Upper Station			
Early Run	30,000		65,000
Late Run	120,000	186,000	265,000
Frazer Fish Pass	70,000	105,000	150,000
Buskin River	8,000		13,000
Pasagshak	3,000		12,000
Saltery Cove	15,000		30,000

In 2004, ADF&G initiated a three year Kodiak fishery subsistence harvest project under funding from the Office of Subsistence Management. Refuge personnel have extensively assisted with the field implementation of this effort. To date interim reports of findings have not been completed or distributed. A benefit to the Refuge office would be a timely submission of inseason data to document harvest under state and federal subsistence regulations. A goal of the Refuge office is to start an in-season subsistence harvest management project which would aid federal and state fishery biologist in making sure that subsistence user groups are meeting their harvest needs. This in-season management project in addition to the post-season harvest project would provide essential information in the federal and state biologist decision making process.

Sea Otter

Endangered Species Act Listing. In 2005, the U.S. Fish and Wildlife Service listed northern sea otters in Southwest Alaska as threatened under the Endangered Species Act (70 FR 46366). This determination was based on population surveys which indicated dramatic declines throughout much of the population segment's range (e.g., marine water adjacent to Kodiak Island, the western Alaska Peninsula, and Aleutian Islands). The Service has formed a recovery team which will provide the Service with recommendations and a plan for the recovery of this threatened population. Representatives to the recovery team include TASSC Chairperson, Margaret Roberts and Dick Jacobson from Sand Point. The next meeting of the recovery team will be 24-25 October 2006 in Anchorage. More information on the recovery team and the listing actions can be found at: http://alaska.fws.gov/fisheries/mmm/seaotters/recovery.htm

Endangered Species Act Special Rule (ESA). On August 15, 2006, the Service published a special rule under section 4(d) of the ESA regarding authentic Native articles of handicraft. This rule allows for the limited, noncommercial import and export of items that qualify as authentic native articles of handicrafts and clothing that were derived from sea otters legally taken for subsistence purposes by Alaska Natives from the listed population. This special rule also allows for cultural exchange by Alaska Natives and activities conducted by persons registered as an agent or tannery under existing law. This final rule also amends our definition of "Authentic native articles of handicrafts and clothing" at 50 CFR 17.3 by striking the stipulation that such items were commonly produced on or before December 28, 1973.

Kodiak Population Trends. The Service's Marine Mammals Office (MMM) completed data analyses on sea otter population trends for the Kodiak archipelago. It appears that the Kodiak Archipelago is on the eastern edge of the overall sea otter population decline in southwest Alaska. Abundance estimates of sea otters in the archipelago have decreased from 13,526 (±2,350) in 1989 to 11,005 (±2,138) in 2004.

Mortality Studies. The Service has submitted a request to the Unusual Mortality Event Working Group (Section 404 of the Marine Mammal Protection Act) for consideration of a sea otter mortality event occurring in Kachemak Bay, Alaska. Although sea otters in Kachemak Bay belong to the southcentral Alaska population stock, they are located immediately adjacent to the ESA listed southwest DPS. We have documented sea otter mortality of all age classes but most of the carcasses recovered were prime-age adult males. The predominant cause of death has been acute valvular endocarditis and sepsis caused by a Streptococcus bovis/equinous complex infection. We also observed a few cases of this disease within the listed population at Kodiak, the Alaska Peninsula, and the Aleutian archipelago. To date, we do not understand the mechanism for the infection in sea otters and it is uncertain whether there is any impact on the overall population. One possibility is that something is weakening the immune response to allow the bacteria to flourish. In a related finding from a collaborative study by the U.S. Fish and Wildlife Service and the U.S. Geological Survey, preliminary results indicate that a majority of sea otters captured in the eastern Aleutians/southern Alaska Peninsula and the Kodiak archipelago in 2004 tested serologically positive for phocine distemper, a type of morbillivirus. Prior to these results, this virus had never been documented for sea otters in Alaska. Preliminary histopathology conducted by Dr. Kathy Burek, suggests that exposure to a morbilli or morbilli-like virus could have an effect on immune response. We have recently begun to test for morbillivirus in sea otter carcasses from Kachemak Bay. The next steps in the investigation are: 1) continued sample collection and analysis; 2) capture of live sea otters in the Lower Cook Inlet area to screen for infectious disease; and 3) assessment of sea otter population trends in Lower Cook Inlet.

Sitka Black-tailed Deer

Sitka black-tailed deer mortality surveys on Kodiak Refuge were completed in April. The purpose of the survey, which has annually operated since 1992, is to index trend in over-winter survival of deer, measured by the number of deer carcasses per unit area in different regions of Kodiak Island.

Three sites were surveyed, including Chief Cove (west Kodiak Island), north Sitkalidak Strait (east Kodiak Island), and west Olga Bay (south Kodiak Island). Survey results revealed a low/moderate mortality rate over winter, totaling 58 carcasses. Carcass count by area consisted of 47 at Chief Cove, nine at Sitkalidak Strait, and none at Olga Bay. By contrast, the 2005 survey yielded a total of nine carcasses in the same areas and the 2004 survey totaled 37. As many as

114 total carcasses have been counted at these three survey areas following a severe winter, such as occurred in 1998-99.

We suspect that more fawns died than are represented in our sample, but we do not sample hair piles without bones, and carrion feeders tend to pack off bones of fawns that die in early winter. Assessment of carcass condition indicated that most of the dead deer we encountered probably died during November. Age composition of these 58 carcasses tallied in 2006 was 45% fawns and 55% adults. Of the 58 deer carcasses, 42 included leg femur bones and sampling of these indicated that death was caused mainly by starvation.

Brown Bear

In April 2006, Mr. William Leacock, Wildlife Biologist joined the Refuge staff. Mr. Leacock will assume responsibility for coordinating the Refuge's bear program.

Every year the Refuge the Refuge and ADF&G collaboratively assess trends in bear density in one of several regions of Kodiak Island. Surveys results are used in conjunction with harvest data to regulate subsistence and sport hunts. In May 2006, we surveyed bears in the Terror Lake vicinity. A combination of poor weather for flying and the rapid onset of leaf-out precluded us from carrying out a statistically analyzable census. Nevertheless, the data we were able to collect indicates that bear density within the Terror Lake Census Area has not changed since the last census in 1997.

The survey report is presently in preparation. Copies of this report will be provided to committee should the agencies recommend any changes to management of bear harvest on the Refuge. ADF&G has scheduled a meeting in October 2006, to discuss options for changing harvest quotas for the recreational sport hunt.

Comprehensive Conservation Plan Revision

Refuge's Revision Status of Comprehensive Conservation Plan. The Final plan has now been written. The schedule as of August 9, 2006 is as follows. It will be sent to the printer by August 18 and should be available to the public by mid-September. There will be a 30-day public comment period on this plan followed by the preparation and distribution of the Record of Decision. Once the Record of Decision is completed, implementation of the revised plan will begin.

In this revision, no changes were made concerning subsistence management or uses on the refuge. The refuge will ensure that rural residents have access to and priority use of refuge resources for the purposes of subsistence, as determined by law. The plan did establish a subsistence goal and three management objectives to further guide how the refuge will continue to manage for subsistence resources and uses.

Other Cooperation

<u>Invasive Weed Cooperative Outreach</u>. The Refuge is continuing its invasive weed survey and control efforts in collaboration with the Kodiak Soil and Water Conservation District. Thus far in 2006, the Refuge collectively completed three survey and two weed control missions at Camp Island, Karluk Lake, and Garden Island, Uganik Bay. Weeds targeted in survey and control efforts included orange hawkweed and Canada thistle.

<u>USFWS Tribal Wildlife Grants</u>. The Refuge has continued to provide support for grant implementation support of two Service-funded Tribal Wildlife Grants: Natives of Larsen Bay and Natives of Port Lions. Natives of Larsen bay intends to use its grant funds to build its resource management capacity through acquisition of GIS equipment, GIS training, and high-resolution digital orthophotos of the Karluk River watershed and Larsen Bay vicinity. Natives of Port Lions are using grant funds to construct a bear-proof fence around the Port Lions landfill. In support of grant implementation, ADF&G and the Refuge have offered and provided technical assistance to the Tribe.

Migratory Bird Harvest Survey. Migratory birds are an important subsistence resource throughout rural Alaska including the Kodiak Archipelago. Subsistence bird use under federal regulations is periodically monitored to evaluate composition and harvest trends. Results are applied to protect both subsistence use opportunities and the bird resource. Presently, surveys in Kodiak are conducted every other year. Accordingly, it is Kodiak's turn, and subsistence bird use will be assessed between spring 2006 and winter 2007 in Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and the Kodiak vicinity. The ADF&G, Division of Subsistence, and the Refuge are jointly coordinating the survey effort. A training session for local harvest surveyors took place in January. Surveyors, all of whom are affiliated with tribes, will be responsible for collecting data and forwarding it to the Refuge. Tonya Lee, Resource Information Technician with Kodiak Refuge, will coordinate with surveyors, monitor project progress, and issue data to the Subsistence Division for analysis.

Salmon Camp

The Kodiak Summer Science & Salmon Camp successfully completed its 11th year. The Kodiak National Wildlife Refuge, in cooperation with Kodiak Island communities and the Alaska Natural History Association, developed Salmon Camp to educate Kodiak youth about natural cycles and processes that sustain salmon and other natural resources. Eight sessions were offered sequentially to children of different grade levels (pre-school through middle school). Additional sessions were held in Akhiok, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions. Camp curricula featured environmental education and science topics including: weather, geology, limnology, predator/prey relationships, salmon dissection, tide pooling and zonation, food webs, animal adaptation, botany, fishing, salmon management, museums, and an archaeological dig site.



United States Department of the Interior

FISH AND WILDLIFE SERVICE King Salmon Fish and Wildlife Field Office P. O. Box 277 King Salmon, Alaska 99613 (907) 246-3442

Agency Report to the: Kodiak / Aleutians Regional Advisory Council

The following summarizes fisheries projects conducted by the US Fish and Wildlife Service on the Alaska Peninsula and Aleutian Islands during 2005-2006. Projects were funded either by the U.S. Fish and Wildlife Service's Fisheries Program (Base) or the Office of Subsistence Management (OSM).

Mortensens Creek weir project, Izembek National Wildlife Refuge. (OSM Funding)

In cooperation with the King Cove Corporation and the Izembek National Wildlife Refuge, a fixed picket weir has been operated on Mortensens Creek from early June through late October annually since 2001. In 2005 the weir was operated from 1 July to 4 October 2005. Sockeye salmon *Oncorhynchus nerka* was the most abundant species counted through the weir (N=21,703) followed by coho *O. kisutch* (N=4,162), pink *O. gorbuscha* (N=164), and chum salmon *O. keta* (N=13). Dolly Varden *Salvelinus malma* (N=153), Bering cisco *Coregonus laurettae* (N=27), and starry flounder *Platichthys stellatus* (N=12) were also observed at the weir

Sockeye salmon sampled at the weir were 54% female, and represented eleven age groups. Age 1.3 was estimated to be 66% of the run, age 2.3 was 17% and age 1.2 was 14%. The length for male sockeye salmon ranged from 374 to 632 mm and from 438 to 600 mm for females. Coho salmon sampled at the weir were 45% female and represented five age groups. Age 2.1 comprised 53% of the run and age 1.1 was 43%. The length coho salmon ranged from 344 to 710 mm for males and from 487 to 679 mm for females. The 2001 to 2005 escapement estimates are summarized in Table 1.

Table 1. Mortensens Creek weir project sockeye and coho salmon escapement estimates from 2001 to 2005.

estimates from 2001 to 2000.		
Year	Sockeye Salmon	Coho Salmon
2001	4,268	5,279
2002	5,205	6,406
2003	16,804	8,184
2004	7,215	3,836
2005	21,703	4,162

Estimation of coho salmon escapement in streams adjacent to Perryville, Alaska Peninsula National Wildlife Refuge. (OSM Funding)

Recent runs of coho salmon *Oncorhynchus kisutch* in the Kametolook, Three Star, and Long Beach rivers near Perryville have declined, and residents can no longer meet their subsistence needs in those rivers. Local residents are now taking coho salmon from streams outside the immediate vicinity of Perryville. With fishing effort spread out to other streams, we need to ensure escapement is maintained to meet the subsistence needs of the Native Village of Perryville. In order to prevent over harvest of these small stocks, escapement in those other streams needs to be monitored. In 2005, two aerial surveys were conducted to count adult coho salmon in streams near Perryville using low-level helicopter flights. Numbers of coho salmon counted in 2005 were lower than those observed during surveys in 2003 and 2004 (Table 2). Coho salmon run timing was also different in 2005. Most coho salmon were counted during the survey in late October 2005, whereas peak counts in previous years occurred in early October. Weather and local water quality conditions affected the survey interval and effectiveness in some streams.

Table 2. Comparison of coho salmon counts for streams surveyed in 2003 and 2004, Clark River counts are for sockeye salmon.

	2003		20	004	2005		
Stream	Survey 1	Survey 2	Survey 1	Survey 2	Survey 1	Survey 2	
Ivanof River	2,600	314	1,300	330	776	1,170	
Humpback Bay	1,120	14	1,040	46	82	207	
Red Bluff Creek	5,000	330 ^a	7,600	836	352	2,482	
Ivan River	2,150	217	1,840	290	507	170	
Clark River	6,100	9,700	5,890	3,240	3,520	4,100	

McLees Lake Weir Project, Alaska Maritime National Wildlife Refuge. (OSM Funding)

In cooperation with the Qawalangin Tribe, Ounalaska Native Corporation, and Alaska Department of Fish and Game, the King Salmon Fish and Wildlife Field Office operated a fixed picket weir at the outlet of McLees Lake on Unalaska Island from 29 May to 26 July 2005. Three species of salmon were counted through the weir including 12,097 sockeye *Oncorhynchus nerka*, 1 chum *O. keta*, and 3 pink *O. gorbuscha* salmon. Peak daily passage occurred on 13 June when 919 sockeye salmon were counted through the weir, and peak weekly passage occurred from 19 June to 25 June when 3,727 sockeye salmon were counted. Six hundred and seventy-six sockeye salmon were sampled for age, sex, and length analysis. Five age classes were identified from the 587 readable scales obtained from sockeye salmon sampled at the weir.

Age class 1.3 was the most abundant, accounting for 88 % of the sample. Females comprised an estimated 38 % of sockeye salmon sampled in 2005.

Sockeye salmon escapement into McLees has varied greatly during the 6 years of operation (Figure 1). To better understand the production of this system we have requested an additional 3 years of funding for this project.

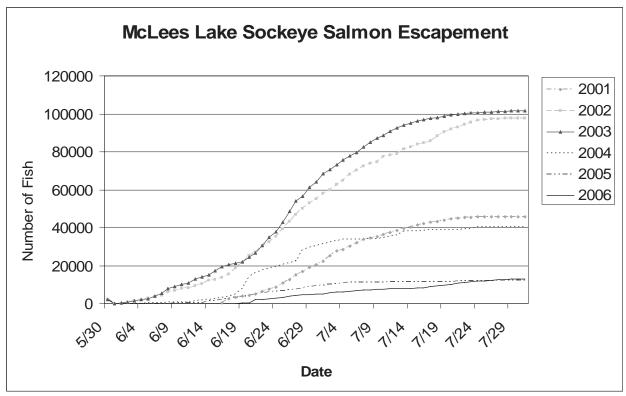


Figure 1. Estimated sockeye salmon escapement into McLees Lake 2001 to 2006.

Alaska Department of Fish and Game Report to the Kodiak-Aleutian Islands Region Subsistence Advisory Council: Update through July 2006 on the Buskin River Sockeye Salmon Fishery and Stock Assessment Project

> By Donn Tracy

> > August 2006

Alaska Department of Fish and Game

Division of Sport Fish



Alaska Department of Fish and Game Report to the Kodiak-Aleutian Islands Region Subsistence Advisory Council: Update through July 2006 on the Buskin River Sockeye Salmon Fishery and Stock Assessment Project

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July 2006

Development and publication of this manuscript were financed under authority of the Fish and Wildlife Coordination Act [16 U.S.C. 661-667 (d)] and the Alaska National Interest Lands Conservation Act [ANILCA; 16 U.S.C. 3101-3233] through a Cooperative Assistance Agreement between the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game (COOP No. 00-093).

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INTRODUCTION

FISHERY DESCRIPTION

The Buskin River drainage, located on Kodiak Island approximately 2 miles from the city of Kodiak (Figure 1), currently supports the single largest subsistence salmon fishery within the Kodiak/Aleutian Islands Region. The fishery occurs in nearshore marine waters adjacent to the river mouth and targets several species of salmon, although sockeye salmon typically comprise as much as 80% of the total harvest (Table 1). Between 2001 and 2005 federally qualified subsistence users have annually harvested approximately 9,700 Buskin River sockeye salmon, which account for more than one-half of the total sockeye salmon harvest reported for the Kodiak/Aleutians federal subsistence region (Figure 2). In addition, about 40% of all subsistence users reporting activity during this period harvested salmon from the Buskin River fishery.

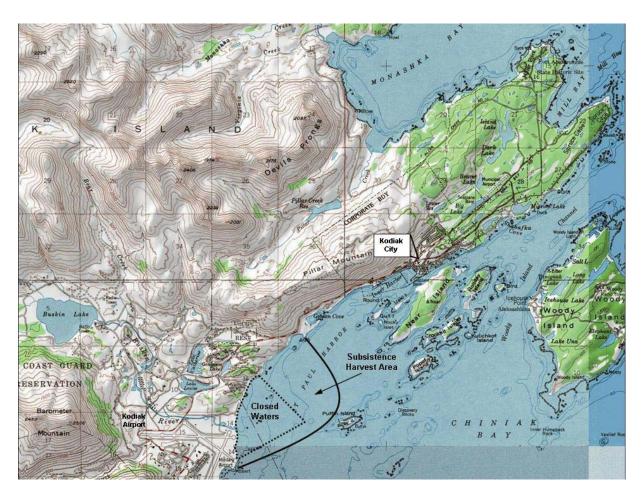


Figure 1. Buskin River drainage, Kodiak Island, including general location of the Buskin River sockeye salmon subsistence fishery.

Table 1. Buskin River drainage reported subsistence salmon harvest by species, 2001-2005.

	•		Reported Subsistence Harvest								
	•	Chinook Sockeye		Coho		<u>Pink</u>		<u>Chum</u>			
		No.	% of	No.	% of	No.	% of	No.	% of	No.	% of
Year	Permits	Fish	Total	Fish	Total	Fish	Total	Fish	Total	Fish	Total
2001	432	63	1%	10,262	84%	1,430	12%	376	3%	67	1%
2002	380	66	1%	10,804	88%	1,276	10%	146	1%	17	<1%
2003	468	26	0%	10,673	87%	1,245	10%	233	2%	26	<1%
2004	412	60	1%	9,034	84%	1,466	14%	188	2%	20	<1%
2005	393	94	1%	8,055	74%	2,374	22%	272	3%	26	<1%
5 Year Avg.	417	62	1%	9,766	84%	1,558	14%	243	2%	31	<1%

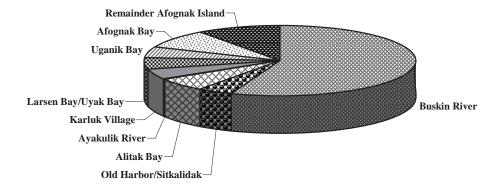


Figure 2. Kodiak Area average annual reported federal subsistence harvest of sockeye salmon by location, 2001-2005.

Buskin River sockeye salmon are also utilized by anglers and, to a much lesser degree, the local commercial fishery. In recent years, sport fishing on the Buskin River has comprised approximately 35%

of the freshwater recreational fishing effort in the Kodiak Management Area (Schwarz et al *in prep*). Between 2001 and 2005 the estimated sport harvest of Buskin River sockeye salmon has fluctuated annually from roughly 800 to 3,000 fish and averaged just under 2,000 (Figure 3). Current sport fishing regulations allow anglers to retain two Buskin River sockeye salmon per day (although during 2004, 2005 and 2006 the daily bag limit was increased to five fish per day inseason as a result of large weir counts). Commercial harvests of Buskin River salmon are usually small in comparison to other users. Fish ticket harvest receipts available from the Alaska Department of Fish and Game's (ADF&G) Commercial Fisheries Division indicate that between 2001 and 2005 the average annual commercial harvest of Buskin River sockeye salmon ranged from 0 - 1,000 fish.

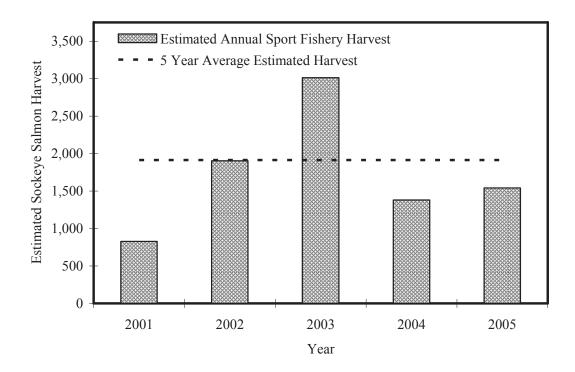


Figure 3. Estimated Buskin River sockeye salmon sport fishery harvest, 2001-2005

MANAGEMENT

The Buskin River sockeye salmon subsistence fishery is annually managed through inseason monitoring of adult fish escaping into the drainage. A salmon counting weir located on Buskin River for this purpose has been operated by ADF&G since 1985. In 2002 a second weir was installed on a major tributary stream flowing into the Buskin River from Catherine and Louise lakes. Escapement of adult sockeye salmon into Buskin Lake typically occurs between late May and mid August, with peak daily weir counts obtained during the second week of June (Figure 4). Since 2002 escapements into Catherine and Louise

lakes have occurred primarily during July and August, with the largest daily weir counts coinciding with flood events during that time period (Figure 4). Currently, an escapement goal range for Buskin Lake set at 8,000 - 13,000 fish is used for management of the sport, commercial and subsistence fisheries to ensure a sustained yield from the population. (Annual sockeye salmon escapement objectives for Catherine and Louise lakes have not yet been established.) If inseason weir counts during a given year indicate a total sockeye salmon escapement of at least 8,000 fish cannot be assured, the sport fishery is restricted by means of reduced daily bag limits or a complete closure of the fishery. Restrictions on any potential commercial harvest will also be enacted, and, if necessary as a final measure, inseason management actions aimed at regulating the subsistence fishery will also be placed in effect.

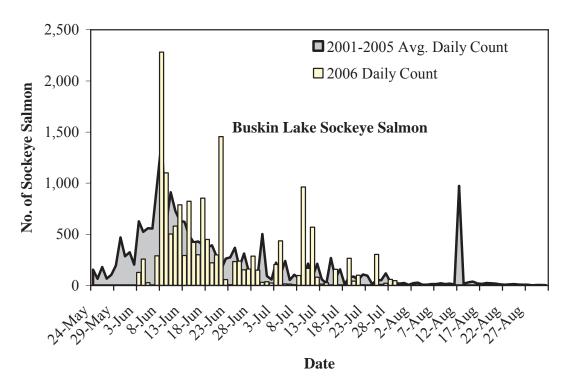
2006 FISHERY

In 2006 the Buskin River sockeye salmon total weir count on July 31 of slightly over 16,000 fish is lower than the most recent 5 year average total escapement of approximately 19,000 fish, but still within the range of yearly escapements during the same period (Table 2) and higher than the upper end (13,000) of the current escapement goal range.

Table 2. Buskin Lake sockeye salmon escapement, 2001 - 2005, and through July 30, 2006, and Catherine/Louise lakes escapement, 2002 - 2005 and through July 30 2006.

Year	Escapement				
	Buskin River	Lake Louise			
2001	20,556				
2002	17,174	3,242			
2003	23,870	4,488			
2004	22,023	2,086			
2005	15,601	2,028			
Average	19,845	2,961			
2006 escapement					
through July31	16,081	1,351			

Timing of the 2006 Buskin Lake return was similar to that of previous years, occurring primarily during the month of June (Figure 4). The Catherine/Louise lakes tributary weir count through July 31 totaling 1,351 fish is slightly less than one-half the average season total count of 2,961 (Table2), but higher than the average count for this date. Thus far the 2006 return has been similar to other years in that most of the escapement has coincided with high water conditions, occurring on July 12, 24 and 25 (Figure 4). More than 65% of the total weir count to date was recorded during this 3 day period.



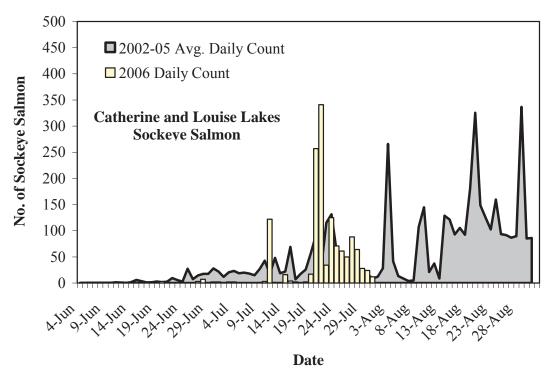


Figure 4. Recent year daily sockeye salmon weir counts into Buskin Lake and Catherine/Louise lakes.

STOCK ASSESSMENT STUDY

NEED FOR RESEARCH/STUDY OBJECTIVES

In order to ensure sustained sockeye salmon production over a long time period a stock assessment study was initiated by ADF&G in 2000 with the goal of establishing a Biological Escapement Goal (BEG), based on a population model using brood-year tables constructed from annual escapement and harvest figures along with the age composition of annual returns. Samples of adult sex ratios, average length and age class needed for the study are collected each year over the course of the returns from escapement through the two weirs and also from the subsistence harvest. Because development of the brood table requires age composition data collected over at least 3 generations of fish, annual data gathering for completion of the study is necessary over a minimum 12 year period.

PRELIMINARY STUDY RESULTS

Data collected to-date from the stock assessment study show promise for determining an optimal BEG appropriate to sustain maximum harvest opportunities for federal subsistence users. Statistical analysis of sex and age class samples from the adult escapement and subsistence harvest indicate that the Buskin stock is primarily comprised of four and five year-old fish, which have a one or two year freshwater rearing life stage and spend two or three years at sea. Sample age composition and fish length data collected from the Catherine/Louise lakes escapement in 2005 and during previous years indicate difference to those collected from Buskin Lake escapements and during the same period, with Catherine/Louise lakes escapements comprised of more age four and age two fish and., consequently, a larger proportion of smaller fish (Figures 5 and 6). Age and length of the sockeye salmon subsistence harvest typically differs markedly from that of escapements, consisting almost exclusively of larger four and five year old fish. This disparity is most likely attributable to the size selectivity of gillnets used in the subsistence fishery.

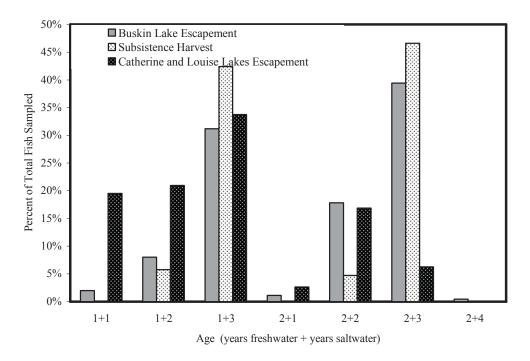


Figure 5. Relative frequency comparison of sample age compositions from the Buskin Lake and Catherine/Louise lakes sockeye salmon escapements and Buskin River drainage subsistence harvest, 2005.

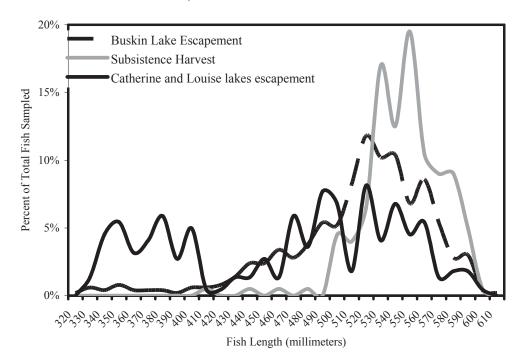


Figure 6. Relative frequency comparison of sample fish lengths from the Buskin Lake and Catherine/Louise lakes sockeye salmon escapements and Buskin River drainage subsistence harvest, 2005.

Reconstruction of the Buskin Lake portion of the sockeye salmon run by its various components indicate that although historically the total return has remained relatively stable at approximately 19,000 fish, since 2001 the annual return has increased substantially, up to more than 37,000 fish in 2003, and to an annual average of more than 30,000 (Figure 7). During the same time frame subsistence harvests have averaged around 35% of the total run and, by harvest volume, have constituted the most important user group dependent on the Buskin River sockeye salmon resource.

During 2004 a preliminary evaluation of sockeye salmon age composition and the combined run components was completed. Results of the analysis indicate that minor adjustment downward of the escapement goal may be warranted; however, the overall poor precision of the recently estimated BEG further indicate that more stock assessment data is needed, which will become available with continued funding for the study. The recent BEG analysis is currently being published in an ADF&G Fisheries Data Series Report (Schmidt et al. *in press*).

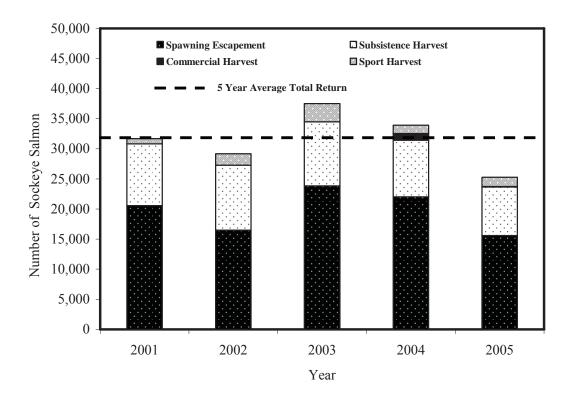


Figure 7. Composition of total sockeye salmon return to the Buskin River, 2001-2005.

CONCLUSION

Since 2000, annual operation of the Buskin River sockeye salmon weir project has been made possible by funding from the Federal Subsistence Management Program. Continued funding of this project is crucial for inseason escapement monitoring necessary to sustain the health of the stock while providing maximum harvest opportunities for subsistence users, and to allow for additional analysis of stock productivity to augment the ongoing stock assessment study which will result in establishment of a refined BEG. While the adult sockeye return appears to be relatively stable, harvest data indicates that the resource is presently fully utilized. The apparent predominance of just two age classes in the population, although not an unusual dynamic for sockeye salmon, leaves the stock vulnerable to overexploitation and significant depletion over the span of just a few generations.

In addition to providing valuable management information and important research insights needed for conservation of the sockeye salmon resource, the Buskin River project has become a vehicle for fisheriesbased education and development of career interest for young subsistence users through establishment of a high school intern program in which students gain knowledge of the principles involved in fisheries management and research and obtain field experience in fisheries data collection methods and techniques. During 2003, with funding from the Buskin project ADF&G and the Kodiak Borough School District developed a high school intern program which annually selects candidates based on academic achievement and career interest in resource management. The intern program currently employs two top qualified students who work on the Buskin project under supervision of ADF&G staff between June 1 and July 31. The high school intern program has been an outstanding success, to the extent that while currently attending college three former interns are continuing their employment with ADF&G as seasonal Fish and Wildlife Technicians. In addition to the intern program, since 2001 ADF&G and the Kodiak National Wildlife Refuge have maintained a cooperative agreement to use the Buskin Rive weir as a platform for the Kodiak Summer Salmon Camp Program, which provides school-aged children a medium for activities and science-based learning. In 2006 the Salmon Camp organizers and ADF&G held weekly sessions at the weir on six occasions, during each of which the young participants were shown the weir operation and given interactive demonstrations on identifying, counting and sampling salmon. Open public access to the weir and interaction with project personnel also allows other federal subsistence users the opportunity to learn about the Buskin River sockeye salmon return, and gain insights into management policies and procedures affecting the subsistence fishery.

LITERATURE CITED

- Schmidt, J., D. Evans and D. Tracy. *In press*. Age Composition, Spawning Escapement, Total Return and Analysis of the Spawner-Recruit Relationship for Sockeye Salmon in the Buskin River. Alaska Department of Fish and Game, Fishery Data Report Series, Anchorage.
- Schwarz, L., D. Tracy, and S. Schmidt. *In Prep*. Area management report for the recreational fisheries of the Kodiak and Alaska Peninsula/Aleutian Islands regulatory areas, 2001-2004. Alaska Department of Fish and Game, Fishery Management Report Series, Anchorage.

Winter 2007 Regional Advisory Council Meeting Window** February 19–March 23, 2007 current as of 8/18/06

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Feb 11	Feb 12	Feb 13	Feb 14	Feb 15	Feb 16	Feb 17
Feb 18	Feb 19	Feb 20	Feb 21	Feb 22	Feb 23	Feb 24
	Meeting Window Opens					
	PRESIDENT'S DAY HOLIDAY	SP—I	Nome			
			laknek	i		
Feb 25	Feb 26	Feb 27	Feb 28	Mar 1	Mar 2	Mar 3
				NS—E	Barrow	
			SE-Kake			'
Mar 4	Mar 5	Mar 6	Mar 7	Mar 8	Mar 9	Mar 10
		WI—	Aniak	NWA-K	otzebue	
Mar 11	Mar 12	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17
	KA—Kir	ng Cove*		YKD—Ho	oper Bay	
	101	19 0010	SC—An		Day	
Mar 18	Mar 19	Mar 20	Mar 21	Mar 22	Mar 23	Mar 24
					Meeting Window Closes	
		FI_	Tok			
			IUK			

^{*}Cold Bay alternate location for K/A

^{**}Kenai Peninsula dates and location to be announced.

Fall 2007 Regional Advisory Council Meeting Window August 27-October 19, 2006 current as of 9-8-06

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aug 26	Aug 27 FISH CYCLE MEETING WINDOW OPENS	Aug 28	Aug. 29	Aug. 30	Aug. 31	Sept. 1
		NS - E	Barrow			
Sept. 2	Sept. 3 Holiday	Sept. 4	Sept. 5	Sept. 6	Sept. 7	Sept. 8
Sept. 9	Sept. 10	Sept. 11	Sept. 12	Sept. 13	Sept. 14	Sept. 15
Sept. 16	Sept. 17	Sept. 18	Sept. 19	Sept. 20	Sept. 21	Sept. 22
Sept. 23	Sept. 24	Sept. 25	Sept. 26	Sept. 27	Sept. 28	Sept. 29
Sept. 30 END OF FY 2006	Oct. 1 BEGINNING OF FY2007	Oct. 2	Oct. 3	Oct. 4	Oct. 5	Oct. 6
Oct. 7	Oct. 8 Holiday	Oct. 9	Oct. 10	Oct. 11	Oct. 12	Oct. 13
Oct. 14	Oct. 15	Oct. 16	Oct. 17	Oct. 18	Oct. 19 FISH CYCLE MEETING WINDOW CLOSES Wildlife Proposal Period Ends	Oct. 20